Contribution ID: **242** Type: **Oral Presentation**

Quadrupole-octupole-coupled states in 112Cd via Coulomb excitation with AGATA and SPIDER

Tuesday 23 September 2025 15:25 (20 minutes)

Cadmium isotopes have been thought to be prime examples of nearly harmonic vibrational nuclei. However, recent studies have started depicting a much more complex picture of their structure, highlighting the possibility of multiple shape coexistence. In particular, advanced beyond-mean-field calculations performed for the 110,112Cd isotopes predict a prolate ground state coexisting with three excited 0+ states, each with a different shape. The coupling of the low-energy quadrupole and octupole vibrations is a subject of particular interest in this context. Indeed, if cadmium isotopes are vibrational, quadrupole-octupole-coupled (QOC) states should manifest at low excitation energy with specific features. In this contribution, I will present the first results regarding QOC states in 112Cd from a Coulomb-excitation experiment performed at the INFN-LNL with the state-of-the-art AGATA spectrometer coupled to the heavy ion silicon detector SPIDER.

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Session Classification: Nuclear Structure, Spectroscopy and Dynamics

Track Classification: Nuclear Structure, Spectroscopy and Dynamics